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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/670,926 | 09/25/2003 | Jong-Shing Guo | 412551 | 6530 |
| 30954 | 7590 | 11/18/2005 | EXAMINER | |
| LATHROP & GAGE LC 2345 GRAND AVENUE SUITE 2800 KANSAS CITY, MO 64108 | | | SASTRI, SATYA B | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1713 | |

DATE MAILED: 11/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|-----------------------------------|--|
| Office Action Summary | Application No. 10/670,926 | Applicant(s) GUO ET AL. | |
| | Examiner Satya B. Sastri | Art Unit 1713 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10,13-20,23,25,26,41-45 and 49-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10,13-20,23,25,26,41-45 and 49-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to application filed on August 31, 2005. *Claims 1-10, 13-20, 23, 25, 26, 41-45, 49-54* are now pending in the application.
2. All previous rejections are withdrawn in light of the arguments presented with the amendment. New grounds of rejections are introduced in this action.
3. It is noted that the applicants have elected the following species: 2-ethylhexyl acrylate as the hydrophobic monomer, acrylic acid as the hydrophilic monomer, diacetone acrylamide as the ketone-containing monomer, allyl amine salt of dodecyl sulfate as the polymerizable surfactant and adipic acid dihydrazide as the crosslinking agent. In the remarks, applicants traverse the rejection over prior art to Takamatsu et al. by stating that the invention employs the elected monomers. However, the amendment does not reflect the invention to the specific elected species and includes the nonelected species as well. Applicants are requested to clarify this issue.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. *Claims 1-10, 13-20, 23, 25, 26, 41-45, 49-54* are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhao et al. (US 6,242,515) in view of Phan et al. (US 5,928,783).

Prior art to Zhao et al. discloses use of polymer dispersions as binding agents for sealing and coating compounds. The polymer has carbonyl or oxirane compound and at least one compound with at least two $-NH_2$ per molecule (abstract). The carbonyl-containing monomer is specifically bisacetonyl acrylamide or bisacetonyl methacrylamide and preferably may make up from 0.1 to 10% by wt. of overall quantity of monomers (column 4, lines 17-20). Suitable monomers copolymerizable with the carbonyl-containing monomers are alkyl esters of mono and dicarboxylic acids, styrene etc. and includes 2-ethylhexyl acrylate monomer (column 4, lines 21-49). The monomers may be used in amounts of 80-99.9% by wt. (column 4, lines 44-48). Modifying monomers may be used in amounts of 0.1 to 20% by weight, and include ethylenically unsaturated C3-C10 acids (column 4, lines 49-60). Crosslinking component with two or more $-NH_2$ groups are listed in column 8, lines 8-50 with adipic dihydrazide as a specific embodiment and may be used in amounts of 0.01 to 10% by wt., based on the wt. of the polymer. Sealing compositions may contain 50 to 95% by wt. of nonvolatile contents of which, 50 to 95% by wt. is accounted for by the wt. of the copolymer and the crosslinking agent (column 10, lines 46-52). Working example 1 discloses the specific use of 2-ethylhexyl acrylate, methacrylic acid, diacetoneacrylamide and methacrylic acid. The solids content is 55% by wt., a pH of 8.3 and mean particle diameter of 280nm are disclosed in example 1.

The difference between the prior art and the instant invention is that the prior art does not teach the use of polymerizable emulsifier in the copolymer composition.

The prior art to Zhao et al. disclose the use of emulsifiers and protective colloids to conduct emulsion polymerization. A variety of non-ionic, anionic and cationic emulsifiers are disclosed (column 6, lines 27-67, column 7, lines 1-27). The secondary reference to Phan et al. concerns pressure sensitive adhesive compositions prepared from aqueous emulsion polymers. The polymers may include 0.1 to 5%, based on total wt. of monomers, of a water soluble or water dispersible polymerizable surfactant having terminal allyl amine moiety as allyl amine salt of dodecylbenzene sulfonate. The prior art teaches that the use of conventional surfactants have detrimental effect in terms of water sensitivity to with tendency to dissolve in water (column 1, lines 33-67). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include polymerizable surfactant such as an allyl amine salt of dodecylbenzene sulfonate in emulsion polymerization of monomers as disclosed by Zhao et al. and thereby obtain the instant invention.

With regard to the particle size, it is noted that the uncrosslinked particle size in Zhao et al. is disclosed as 280 nm. It is the examiner's position that crosslinking predominantly occurs inside the particle and would result in a smaller particle with increased density.

While the working example in Zhao et al. utilizes methacrylic acid, the disclosure does teach the use of C3-C10 mono and dicarboxyl acids. Functional equivalence and interchangeability of acrylic acid and methacrylic acid is obvious to one of ordinary skill in the art.

With regard to *claim 13*, it is the examiner's position that the adhesive composition based on the combined teachings of the prior art would intrinsically possess the instantly claimed peel strength.

Art Unit: 1713

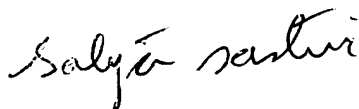
Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Satya Sastri at (571) 272 1112.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached at (571) 272 1114.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



SATYA SASTRI

November 9, 2005



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